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Univation Technologies LLC
Suite 1950
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EXAMINER

CHEUNG, WILLIAM K

ART UNIT	PAPER NUMBER
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1796

MAIL DATE	DELIVERY MODE
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06/23/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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DETAILED ACTION

1. The examiner acknowledges the receipt of the amendment filed May 18, 2009. Claims 2-4, 9, 16-45 have been cancelled, and new claim 46 has been added. Claims 1, 5-8, 10-15, 46 are pending.

2. In view of the argument filed May 18, 2009, the rejection of Claims 1, 5-8, 10-15, 46 under 35 U.S.C. 102(e) as being anticipated by McConville et al. (US 6,271,325), is withdrawn.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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4. Claims 1, 5-8, 10-15, 46 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-38 of U.S. Patent No. 6,271,325. Although the conflicting claims are not identical, they are not patentably distinct from each other because both the invention of Claims 1, 5-8, 10-15, 46 and the invention of claims 1-38 of U.S. Patent No. 6,271,325 are related to an olefin polymerization process using substantially identical catalyst. Regarding claims 13-15, Claims 16 and 17 of U.S. Patent No. 6,271,325 clearly teach the ethylene and propylene as claimed. Therefore, the examiner has a reasonable basis that that invention of Claims 1, 5-8, 10-15, 46 of instant application fully encompasses the invention of the invention of claims 1-38 of U.S. Patent No. 6,271,325.

Applicant's arguments filed May 18, 2009 have been fully considered but they are not persuasive. Applicants argue that a terminal disclaimer will be filed when the claims are found allowable. Therefore, the instant ODP is maintained until a terminal disclaimer is filed.

5. Claims 1, 5-8, 10-15, 46 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 6,300,439. Although the conflicting claims are not identical, they are not patentably distinct from each other because both the invention of Claims 1, 5-8, 10-15, 46 and the invention of claims 1-14 of U.S. Patent No. 6,300,439 are related to an olefin polymerization process using substantially identical catalyst. Regarding claims 13-15, the specification of Patent No. 6,300,439 (page 10, line 11-18) clearly teach the

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monomers as claimed. Motivated by the expectation of success of preparing polyolefins using the disclosed catalyst system, it would have been obvious to one of ordinary skill in art to appreciate the process of polymerizing the disclosed monomers using the claimed catalyst system to obtain the invention of instant application.

Applicant's arguments filed May 18, 2009 have been fully considered but they are not persuasive. Applicants argue that a terminal disclaimer will be filed when the claims are found allowable. Therefore, the instant ODP is maintained until a terminal disclaimer is filed.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

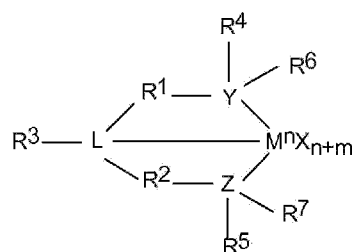
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Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

7. Claims 1, 5-8, 10-15, 46 are rejected under 35 U.S.C. 102(e) as being anticipated by Matsunaga (US 6,294,495) for the reasons adequately set forth from paragraph 8 of the office action of February 19, 2009.

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1. (Currently Amended) A process for polymerizing olefin(s) comprising combining said olefin(s) in the presence of a catalyst system comprising a Group 15 containing [bidentate or] tridentate ligated hafnium catalyst compound, wherein the hafnium metal atom is bound to at least one leaving group and to [at least two] three Group 15 atoms, and wherein [at least one of the at least] two of the Group 15 atoms [is bound to a Group 15 or 16 atom] are each bound to the third Group 15 atom through a bridging group; and a bulky ligand metallocene catalyst compound, wherein the bulky ligand metallocene compound and the Group 15 containing tridentate ligated hafnium catalyst compound are added to a polymerization reactor in one of a slurry, a solution, an emulsion, a dispersion or a suspension, and wherein the Group 15 containing tridentate ligated hafnium catalyst compound is represented by the formula:



Formula (I)

wherein M is hafnium;

each X is independently a leaving group;

n is the oxidation state of M;

m is the formal charge of the Y, Z and L ligand;

L is a Group 15 element;

Y is a Group 15 element;

Z is a Group 15 element;

R¹ and R² are independently a linear, branched, or cyclic C₂ to C₂₀ alkylene group;

R³ is a hydrocarbon group, hydrogen, a halogen, or a heteroatom containing group;

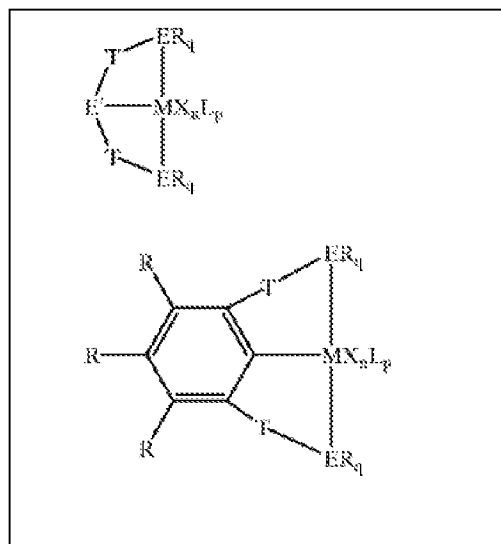
R⁴ and R⁵ are independently an alkyl group, an aryl group, substituted aryl group, a cyclic alkyl group, a substituted cyclic alkyl group, a cyclic arylalkyl group, a substituted cyclic arylalkyl group or multiple ring system;

R¹ and R² may be interconnected to each other, and/or R⁴ and R⁵ may be interconnected to each other; and

R⁶ and R⁷ are independently absent, or hydrogen, an alkyl group, halogen, heteroatom or a hydrocarbyl group.

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Matsunaga (abstract; col. 2, line 3-48) discloses tridentate structure as defined by formula (A).



Regarding the claimed "bulky ligand metallocene compound" of claim 1, which is an additional catalyst to the non-metallocene type catalyst as defined by Formula (I) of claim 1, Matsunaga (col. 9, line 50-60) clearly that the non-metallocene catalyst disclosed can be as a mixed catalyst with other known olefin polymerization catalyst compounds.

The catalyst compositions of the invention can be used as 50 described above individually for coordination polymerization or can be mixed to prepare polymer blends with other known olefin polymerization catalyst compounds. By use of mixtures, of coordination catalyst compounds, polymer blends can be prepared under polymerization conditions 55 analogous to those using individual catalyst compositions. Polymers having increased molecular weight distribution ("MWD") for improved processing and other traditional benefits available from polymers made with mixed catalyst systems can thus be achieved. 60

Since Matsunaga (col. 1, line 16-28) clearly recites "it is well known in the art" that metallocene catalysts characterized by "cyclopentadienyl-based ancillary ligand

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systems" are suitable for the polymerization of olefins, it would not be difficult to one of ordinary skill in art to recognize and appreciate that Matsunaga (col. 9, line 50-60) teaches metallocene catalysts as the "other known olefin polymerization catalyst compounds". Regarding the claimed "bulky" nature of the metallocene catalyst, since cyclopentadienyl based catalyst inherently possess bulky groups, the examiner has a reasonable basis to believe that the claimed "bulky" feature is adequately met by Matsunaga. Applicants must recognize that the claims as written do not specify what type of groups are considered "bulky" or "not bulky".

Regarding the structure of claim 46, Matsunga et al. (col. 4, clearly indicate that the R group of the disclosed tridentate structure can be alkyl-substituted aromatic radicals, which meet the requirements as claimed.

Matsunaga (col. 8, line 20-25) clearly indicates that the polymerization process can be carried out in liquid phase, such as solution, slurry, suspension, bulk phase or combination thereof. Regarding the claimed polymerization temperature, Matsunaga (col. 8, line 43-46) clearly teaches a polymerization temperature preferably ranging from -20 to 220 degree C. Regarding the claimed activator, Matsunaga (col. 5, line 18-65) clearly teach the use of a co-catalyst (or activator). Regarding the claimed comonomers, Matsunaga et al. (col. 9, line 40-49) disclose comonomers having the number of carbons that clearly met the feature of claim 13. Since Matsunaga contains all the features of claims 1, 5-8, 10-15, 46, claims 1, 5-8, 10-15, 46 are anticipated.

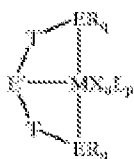
Applicant's arguments filed January 30, 2009 have been fully considered but they are not persuasive. Applicants argue that the claims are allowable because Matsunaga

is silent on a catalyst comprising bulky ligands. However, applicants fail to recognize that Matsunaga (abstract; col. 2, line 3-48) discloses tridentate structure as defined by formula (A).

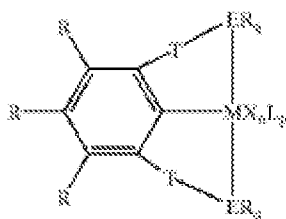
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ABSTRACT

An activated tridentate-, monooanionic-ligand-based transition metal catalyst in a reduced oxidation state for olefin polymerization is disclosed. Transition metal catalyst precursors for these catalysts have the formulae:



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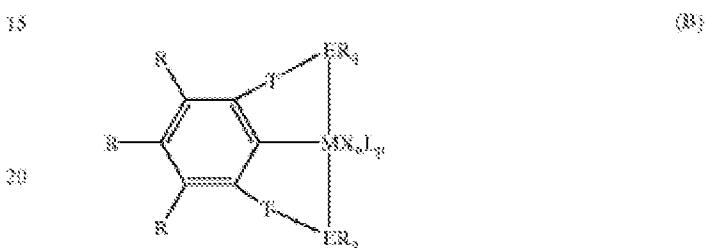


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in which M is a transition metal from Groups 4-9 in a reduced oxidation state, X is a mono anionic ligand, L is a neutral donor group, E is a neutral donor group from Groups 15 and 16, E' is a monoanionic donor group from Group 15, T is a bridging group, n is 1-3 as needed to balance the charge on M, p is 0-3 and q is 1-2. Olefin polymerization is exemplified.

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5 In a preferred embodiment, the present invention is directed to a tridentate catalyst system for the polymerization of α -olefins comprising the reaction product of: (a) an organometallic complex of one of the formulae:



25 wherein M is a transition metal from Groups 4-9 in a reduced oxidation state; each X is independently halogen, alkoxide, aryloxy, amide, phosphide, hydride, hydrocarbyl, substituted hydrocarbyl, halocarbyl, substituted halocarbyl, hydrocarbyl- or halocarbyl-substituted organometalloid, or two X groups are joined and bound to the transition metal or an L group to form a ring structure, or one or more of X can contain an L group; L is a neutral donor group which stabilizes the complex; each E is independently a neutral donor group selected from Groups 15 and 16; E' is a monoanionic donor group selected from Group 15; R has the same definition as X but may be the same or different; T is a bridging group containing an element or combination of elements from Groups 13-16; n is a number from 1 to 3 which is determined by counterbalancing the charge on the transition metal such that the transition metal remains in a reduced oxidation state and the overall charge on the complex is neutral; p is a number from 0 to 3 as needed to stabilize the complex; q is 1 or 2 such that E remains a neutral donor group; and (b) a catalyst activator compound. E is preferably selected from N, P, S and O and E' is preferably N or P. M is preferably Ti, V, Cr, Mn, Fe or Co. The catalyst activator compound can be alkylaluminum, an alkyl aluminum cocatalyst activator, or an ionizing noncoordinating anion precursor compound.

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Regarding the structure of claim 46, Matsunga et al. (col. 4, clearly indicate that the R group of the disclosed tridentate structure can be alkyl-substituted aromatic radicals, which meet the requirements as claimed.

Regarding the claimed "bulky ligand metallocene compound" of claim 1, which is an additional catalyst to the non-metallocene type catalyst as defined by Formula (I) of claim 1, Matsunaga (col. 9, line 50-60) clearly that the non-metallocene catalyst disclosed can be as a mixed catalyst with other known olefin polymerization catalyst compounds.

The catalyst compositions of the invention can be used as 50
described above individually for coordination polymeriza-
tion or can be mixed to prepare polymer blends with other
known olefin polymerization catalyst compounds. By use of
mixtures, of coordination catalyst compounds, polymer
blends can be prepared under polymerization conditions 55
analogous to those using individual catalyst compositions.
Polymers having increased molecular weight distribution
("MWD") for improved processing and other traditional
benefits available from polymers made with mixed catalyst
systems can thus be achieved. 60

Since Matsunaga (col. 1, line 16-28) clearly recites "it is well known in the art" that metallocene catalysts characterized by "cyclopentadienyl-based ancillary ligand systems" are suitable for the polymerization of olefins, it would not be difficult to one of ordinary skill in art to recognize and appreciate that Matsunaga (col. 9, line 50-60) teaches metallocene catalysts as the "other known olefin polymerization catalyst compounds". Regarding the claimed "bulky" nature of the metallocene catalyst, since cyclopentadienyl based catalyst inherently possess bulky groups, the examiner has a reasonable basis to believe that the claimed "bulky" feature is adequately met by

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Matsunaga. Applicants must recognize that the claims as written do not specify what type of groups are considered "bulky" or "not bulky".

Applicants do not have any basis to believe that the Matsunga et al. do not possess the bulky ligand as claimed.

Conclusion

8. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William K Cheung whose telephone number is (571) 272-1097. The examiner can normally be reached on Monday-Friday 9:00AM to 2:00PM; 4:00PM to 8:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David WU can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/William K Cheung/
Primary Examiner, Art Unit 1796

William K. Cheung, Ph. D.
Primary Patent Examiner
June 18, 2009